Nutrition News

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PROTEIN FOR ALL AGES

CENTRAL FILE

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Protein is an essential part of every living cell and hence of utmost importance in all of life. In man all the protein or its component parts, the amino acids, must be supplied preformed in the diet.

The infant needs a large amount of protein per unit of body size due to his fast growth which involves the formation of new cells and the increase in size of cells already developed. Nature has provided the infant with protein containing the amino acids essential for growth in the form of milk. Thus milk provides the baby with its only protein for the first weeks of life and continues to supply an ideal combination of amino acids throughout the whole growing period.

The daily milk that has provided the infant with the bulk of his protein needs continues to be a good way for the pre-school and school child to get a goodly portion of protein. By this time many other protein-containing foods are in his diet helping to supply amino acids for growth. But most animal foods, specifically milk, eggs, cheese, and meat, supply better proportions of essential amino acids than do the cereal, legume, and vegetable proteins. Not only the quality but quantity of protein is usually higher in animal foods.

As the child enters adolescence the spurt in his growth rate is accompanied by an increased need for protein. It is essential to increase protein intake during this period.

For Adults

Adult man, having reached his mature size, probably continues growth to a certain extent but his greatest need for protein is for upkeep and repair. It seems likely that the number of amino acids for maintenance may be less than those for growth. But the relative biological values of foods for the adult seem similar to those tested for growth. In experimental studies conducted at Illinois on college women, milk was found to have the highest biological value of the foods tested showing 74% of the absorbed nitrogen utilized. In the same comparison when patent white flour was used as the sole source of protein in the diet, the biological value was 41%. This indicates that almost twice as much protein is needed from the cereal source to equal the value of that obtained from milk. In a mixed diet, the protein value was 65%, intermittant between the good animal values and the poorer plant values.

It is conceivable that plant proteins may be supplemented by amino acids which they lack or in which they are low but thus far this has not been a practical measure in human feeding. Consequently the safest way to be sure there are plenty of readily absorbable essential amino acids is to feed a variety of proteins including several from animal sources.

Digestibility of foods is an important factor for all ages. In general, because of greater digestibility, it can be said that non-fibrous foods such as animal foods and highly refined plant foods will provide proteins whose amino acids are more completely absorbed than those of vegetable origin accompanied by large amounts of indigestible fiber.

Increases Indicated

The protein needs of pregnant women are higher than the usual needs. This is due to the formation of new cells in the developing fetus. The expectant mother must step-up her protein intake if she and the developing child are to be in optimum health. Surveys at Harvard have shown that women consuming 85 grams of protein or more bear healthier infants than those receiving less protein. This quantity of protein is about one and one-half times the recommendation for the non-pregnant woman and is best supplied by foods containing the essential amino acids. The recommended policy of consuming a quart of milk per day would provide more than one-third of the total amount.

Dr. Bricker

In lactation the need for amino acids is even greater, for now the woman must supply milk to feed a larger and rapidly growing baby. Her appetite for all foods will be greater, but she should continue to choose plenty of foods containing good quality protein.

Currently much interest is placed on nutritional needs of the aged, and several studies are being conducted. These seem to indicate that both older men and older women exhibit a great need for protein and seem to benefit from intakes that are 50% or more above the needs of younger adults. Whether there is poorer absorption of the nutrients consumed, a greater need for certain amino acids, or a combination of various factors is still unknown, but research in this field is some of the most promising today.

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Glances AT NUTRITION RESEARCH

The nutritional value and safety of our food supply is under constant investigation. Metabolic and growth studies reveal variations in the utilization of nutrients from different foodstuffs. Again demonstrated is the effectiveness of pasteurization of dairy foods as a safeguard of public health.

Superiority of Milk for Growth—Milk was shown, in tests with infant rats, to more efficiently support growth than did strained canned meats and fish commercially prepared as baby foods (beef, lamb, pork, and tuna). In all experiments those animals which received nonfat milk solids gained more per gram of nitrogen in their food than did the animals receiving the other foods as a source of protein. Milk protein has frequently been demonstrated to have a higher biological value than meats and fish by virtue of its amino acid content. The vitamin B_{12} and other non-protein nutrients in milk, plus its digestibility, may also contribute to this observed superiority of milk to support growth.

—J. Nutrition 47:119 (May) 1952.

Weight Reduction — A moderate-fat diet (80 gm. fat, 90 gm. protein, and 80 gm. carbohydrate) has been found to be effective in weight reduction studies. Ten college women on such a diet for eight and one-half weeks maintained high blood levels of nutrients throughout. Fasting cholesterol and lipid levels in the blood were within normal limits at the end of the reducing period. As with other types of reducing diets, the retentions of nitrogen, calcium, and phosphorus of these young women fell below those of average college-age women as weight loss progressed. This appears to be a physiological response to calorie deficit.

—J. Am. Diet. Assn. 28:529 (June) 1952.

Pasteurization Kills Polio Virus — Pasteurization of milk, cream, and ice cream effectively inactivates poliomyelitis virus. Samples of these dairy foods were inoculated with the virus obtained from human fecal material and infected spinal cord suspensions from monkeys and rodents. Subsequent testing of pasteurization methods revealed inactivation of the virus with heat penetration using both standard pasteurization methods employed commercially: the holding method (143°F. for 30 minutes) and the high-temperature short-time method (160°F. for 15 seconds).

—Am. J. Public Health 42:525 (May) 1952.

Calcium Retention in Young Women—Further evidence has been reported that the calcium in spinach cannot be counted upon to significantly contribute to the dietary need for that mineral. Addition of spinach to a controlled basal diet consumed by six young women failed to increase retention of calcium despite the extra amount of the mineral in the spinach eaten. The authors concluded that the 820 mg. of calcium supplied by the basal diet was inadequate for the optimum nutrition of the subjects studied, as some subjects were in negative calcium balance on this intake level. Loss of calcium in hair, nails, and perspiration are not considered in such balance studies. Though small, such losses must be replaced by dietary calcium.

—J. Am. Diet. Assn. 28:933 (Oct.) 1952.

TIMELY TOPICS

Dr. Bricker

Dr. Bricker received her Ph. D. from the University of Illinois, and served on the staff there for three years. She also served on the faculties of Florida State University, and the University of California at Los Angeles. At the latter she was engaged in nutrition teaching and research principally in the field of protein and amino acids in human nutrition. In June 1952, Dr. Bricker married Malcolm K. McIntosh. They now live in Bath, New Brunswick.

Soil Fertility

Does the fertility of the soil affect the nutritive value of the crops, the nutrition of the cow, the nutritive value of the milk, and ultimately the health of the consumer? A study to answer these questions was initiated at Michigan Agricultural Experiment Station in 1945, and is planned for continuation for at least a ten-year period.

Obesity and Mortality

Over a 25-year period, ending in 1951, 50,000 overweight persons insured at higher than standard rates were studied by the Metropolitan Life Insurance Company. It was found that these persons had a higher mortality than people of normal weight. An objective study of 4,000 of the obese persons who reduced and obtained insurance at standard rates, showed that weight reduction significantly lowered the mortality as compared with those who remained overweight.

A PROGRAM FOR EMPLOYEES' NUTRITION

By Wintress Dalbey Murray, Nutrition Director
Eastman Kodak Company, Rochester, New York

"I never felt better in my life" is the nearly unanimous comment of employees who successfully follow Kodak's High Protein Reduction Diet. Good health habits and good food habits are also helpful in relieving acne, chronic colds, constipation, abdominal distress, fatigue, and other chronic conditions.

Kodak's nutrition program started as result of a medical examination of all employees in 1921. The medical staff realized that many signs and symptoms reported probably related to faulty food habits. In 1922 the medical director appointed a nutrition adviser to consult with the staff and some employees on ways to help correct apparent nutritional deficiencies.

The program has since been expanded to its present three phases:

1. Nutrition education by the nutrition director and three dietitians with guidance of the medical director and and offered in the medical departments.
2. Counseling company management and individual managers of the in-plant cafeterias and service dining-rooms regarding the provision of nutritious food at a reasonable cost.
3. One-year administrative course for dietetic interns which provides practical experience in all phases of food service management.

The major emphasis of the nutrition education program is individual consultations with employees. They are referred during the pre-employment medical examination if overweight, underweight, or if for any reason the doctor feels a food history or instruction is needed. Employees are also referred by the medical staff when symptoms indicate possibility of faulty food habits. There is a food budget counseling service for brides and others who feel the need for such help.

In any diet consultation the dietitian first records the nutrition history: the usual meal pattern, between-meal snacks, and daily or weekly summary of basic foods eaten. Diet instructions are based on this information as well as personal and family problems which have a bearing on the employee's ability or willingness to follow instructions. Through the counseling service 9,000 employees are seen each year.

The nutrition director and her assistants evaluate educational leaflets and have the best available on racks in medical department waiting rooms. About 1,750 leaflets are used each month. Posters are selected and exhibits planned and set up in the cafeterias and medical departments to emphasize principles of good nutrition.

Perhaps our most effective medium for getting nutrition information to families of employees is through our weekly newspaper, Kodakery. Feature articles and a question and answer column have been well received.

Kodak opened the first facility for feeding its employees 33 years ago. Today in Rochester there are 18 company-operated cafeterias and four service dining rooms, serving some 25,000 people a day and employing 10 graduate dietitians in addition to a number of home economists and others trained in food administration. The nutrition director is available to the cafeteria managers and to the personnel, industrial relations and medical departments for consultation on matters of in-plant feeding. The counsel of both the medical director and nutrition director are requested on matters of sanitation noted in monthly sanitary inspection.

According to a recent survey, our employees eat more of the important foods than the average industrial worker. One reason for the high milk consumption may be the availability of milk and ice cream dispensers.

Since 1943, a one-year administrative course for dietetic interns, the first established by an industrial concern, has trained eight interns yearly in industrial nutrition. Kodak's course is approved by the American Dietetic Association.

Health education is important in industrial preventive medicine. Since proper food habits are fundamental in maintenance of health, an industrial nutrition program seems a practical approach to health education.

TEEN AGE GIRLS NEED HELP IN WEIGHT CONTROL

By Lillian Nash, Chief, Division of Nutrition, Cook County Department of Public Health, Chicago

Nutritionists of the Cook County Department of Public Health work with public health nurses, school personnel, and school children on nutrition education projects. Guidance has been requested for children, particularly adolescent girls, found through the physical examination program to be obese or discovered by public health nurses or school personnel to have poor food habits because of the fear of gaining weight.

One group of 18 girls from 12 to 15 years of age attended a school for emotionally disturbed and delinquent girls. They were about 6 to 105 pounds overweight as determined by the Wetzel Grid. All were examined by a physician. The teacher organized the girls into a club and asked the nutritionist to meet with the group for 14 weekly conferences. At the first meeting the nutritionist guided discussion and showed the film, "Weight Reduction Through Diet." Although this film is directed to adults of college age and older, the girls were interested in it because it showed them that others have their same problem. We found that the girls did not remember the diet as outlined for adults in the film but were impressed that food must be curtailed to lose weight and certain foods are important.

Six three-day dietary records were kept by the girls. The first records showed poor food habits. Most girls skipped breakfast. The Negro girls tended to eat large amounts of fat and fat-laden greens, rice, and cornbread. Almost all girls omitted fruits, vegetables, and drank pop instead of milk.

After reviewing the first dietary records, there were two group discussions about the foods to eat. The girls were given a food chart and a pamphlet, "Let's Scale Down," which was prepared for them since appropriate materials were not found. All discussions were informal. They stressed the eating of foods necessary for health and looks, and eliminating foods that chiefly add calories.

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DID YOU KNOW ?

—that last year Denmark and New Zealand together exported more butter than all other countries combined; the United Kingdom was the largest importer, importing more than Denmark and New Zealand together exported?

—that for every four people sitting down to a meal in 1950, there will be a fifth person in 1975, according to a United States Department of Agriculture report?

—that ⅓ pint of vanilla ice cream is about equal to ½ cup of whole milk in calcium, protein, and the B-vitamins, and to more than one cup in vitamin A and calories?

—that on an average, a person consumes approximately 1550 pounds of food annually?

—that schools in the National School Lunch Program last year used 359 million quarts of milk, 248 pounds of other dairy products, and over 570 million pounds of fruits and vegetables?

—that an enzyme preparation, derived from the head and neck tissues of calves, which markedly accelerates the aging of cheese has been developed?

—that a few drops of finger-tip blood can be analyzed for vitamin A, carotene, vitamin C, riboflavin, thiamine, hemoglobin, iron, serum protein, and the enzyme phosphatase?

THINGS YOU'LL LIKE TO READ

Essentials of Infant Feeding for Physicians— Herman Meyer, M. D. Springfield, Illinois: Charles C. Thomas, Publisher. 1952. $7.75.

This concise book is a digest and summary of the modern knowledge of infant feeding, organized for quick reference by the general practitioners and pediatricians. It includes sections on recent advances, breast and artificial feeding, formula computation, proprietary food, solid food and vitamin supplements.

The Technique of Clear Writing — Robert Gunning. New York: McGraw-Hill. 1952. $3.50.

A helpful book that follows its own principles of clear and readable writing. These principles, plus a simple and accurate formula for testing readability, will help banish "fog" from writing, and help improve form and force of personal style. A help to anyone who must write business and/or technical reports or articles.

The Use of Industry Aids in Schools— Lanore A. Netzer. 1952. Distributed by Wisconsin Manufacturers' Association, 633 North Water Street, Milwaukee 2, Wisconsin. $6 each; 20 or more copies, $3.60 each.

This is a thesis towards a doctorate from the University of Wisconsin, and covers use of industry-sponsored materials in the city public schools of Wisconsin. It includes implications and recommendations for use, preparation, revision, distribution, and availability of industry-sponsored materials.

Preventive Medicine and Public Health, 2nd Ed.—Wilson G. Smillie, M. D. New York: The Macmillan Co. 1952. $7.50.

This is an extensive revision of a standard text for public health workers. New chapters have been added covering accidents and conservation of vision. More emphasis has been placed on community planning for health promotion, and health protection of the child and the aged.

TEEN AGE GIRLS NEED HELP IN WEIGHT CONTROL

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Fifteen girls carried through the program with frequent follow-ups by the nutritionist and physician. Of these, two lost 11 pounds each; one, eight pounds; one, five pounds; 10 held their weight steady; one gained six and a half pounds. One girl had good weight loss until a distressing home condition arose and she immediately regained the lost weight.

A similar consultant plan is being followed with another high school group referred through the school physical examination program. From one school, 45 girls, 15 to 50 pounds overweight, were organized into three groups by the nurse. The school personnel recognized the girls' problems and permitted each group to meet during school hours with the nutritionist, bi-weekly for six months. Meal planning with food models was particularly effective. Lower-calorie packed lunches and after-school snacks were attacked as major problems.

Results: 20 girls lost from five to 15 pounds; 20 ceased to gain or lost slightly; only five continued to gain very slowly. Perhaps more significant was the improved food habits, particularly in eating breakfast, limiting soft drinks and malted drinks, increasing use of milk, vegetables, and fruits.

Another problem met with girls who are not overweight, is poor food habits because of the fear of gaining weight. Girls in one such group discovered by a public health nurse, ate little or no breakfast, had a sandwich and soft drink for lunch, and particularly curtailed milk, cereal, citrus fruit, and vegetables. After school, the girls freely ate starchy and sweet foods with soft drinks. Guided by group discussions with the nutritionist, most of these girls slowly improved eating habits without gaining. Illustrative material similar to that used with other groups proved effective with these girls.

Weight gain or fear of it is a strong influence on the food habits of teen-age girls. It merits sympathetic and personal attention. When the girls experience guidance from teachers, physicians, nurses, and nutritionists, attitudes toward food begin to change.